

## AMENDED CLAIMS

[received by the International Bureau on 03 August 2005 (03.08.05),  
original claims 1 to 47 replaced by new claims 1 to 35 (4 pages)]

1. A water-based composition for treating a metal, comprising a treatment agent selected from an alkanethiol, alkyl thioglycollate, dialkyl sulfide or dialkyl disulfide,  
5 and in concentrations effective to solubilize said treatment agent:

a non-ionic relatively hydrophobic surfactant which is a compound of the formula



- wherein  $R_1$  represents  $C_{10}$ - $C_{24}$  alkyl or alkenyl,  $m$  is 0 or 1 and  $n$  is 1 or 2, or which is  
10 ethoxylated fatty acid monoglyceride;

an anionic surfactant; and

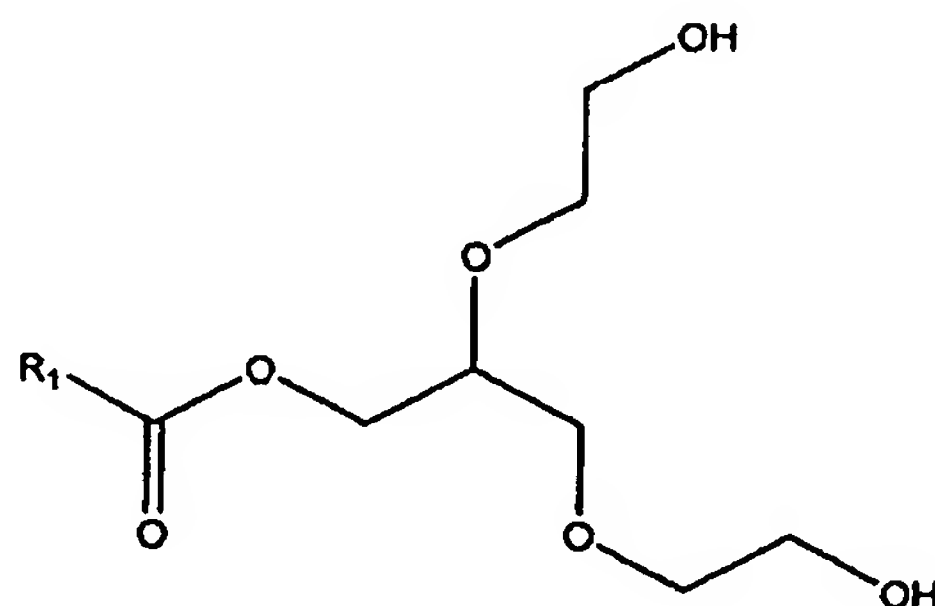
a zwitterionic surfactant selected from betaine surfactants, imidazoline-based surfactants, aminoalkanoate surfactants and iminodialkanoate surfacts.

- 15 2. The composition of claim 1, wherein the treatment agent is hexadecyl or octadecyl mercaptan.

3. The composition of claim 1 or 2, wherein the non-ionic relatively hydrophobic surfactant comprises cocamide DEA.

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4. The composition of claim 1, wherein the non-ionic relatively hydrophobic surfactant comprises an ethoxylated fatty acid monoglyceride of the formula:



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wherein  $R_1$  represents  $C_{10}$ - $C_{24}$  alkyl or alkenyl.

5. The composition of claim 4, wherein the surfactant is a compound in which R1 represents C<sub>12</sub>-C<sub>18</sub> alkyl or alkenyl.
- 5 6. The composition of claim 5, wherein the surfactant is glycereth-2-cocoate.
7. The composition of any preceding claim, comprising 0.5-10 wt % of the relatively hydrophobic surfactant.
- 10 8. The composition of any preceding claim, comprising 1-6 wt % of the relatively hydrophobic surfactant.
9. The composition of any preceding claim, comprising 2-5 wt % of the relatively hydrophobic surfactant.
- 15 10. The composition of any preceding claim, further comprising a polyol.
11. The composition of claim 10, comprising 0.5-10 wt % of the polyol.
- 20 12. The composition of claim 10, comprising 1-8 wt % of the polyol.
13. The composition of claim 10, comprising 1-5 wt % of the polyol.
14. The composition of any of claims 10-13, wherein the polyol is glycerol.
- 25 15. The composition of any preceding claim, wherein the anionic surfactant is of the formula RO-(CH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>SO<sub>3</sub>M wherein R represents C<sub>10</sub>-C<sub>18</sub> alkyl, n is 2-6 and M represents a monovalent cation.
- 30 16. The composition of claim 15, wherein the anionic surfactant is a monovalent cation salt of laureth sulfate.

17. The composition of any preceding claim, wherein the amount of anionic surfactant (solids) is 0.1-15 wt%.
18. The composition of claim 17, wherein the amount of anionic surfactant (solids) is 0.3-10 wt%.
19. The composition of claim 17, wherein the amount of anionic surfactant (solids) is 0.5-1 wt%.
20. The composition of any preceding claim, wherein the zwitterionic surfactant is cocamidopropyl betaine.
21. The composition of any preceding claim, wherein the zwitterionic surfactant is present in an amount of 0.3-6 wt%
22. The composition of claim 21, wherein the zwitterionic surfactant is present in an amount of 0.6-3 wt%.
23. The composition of claim 21, wherein the zwitterionic surfactant is present in an amount of 0.9-1.5 wt%.
24. A composition according to any preceding claim comprising treatment agent in an amount of 0.1-5 wt%
25. A composition according to claim 24 comprising treatment agent in an amount of 0.5-2 wt%.
26. A composition according to claim 24, comprising treatment agent in an amount of about 1 wt%.
27. A composition according to any preceding claim, further comprising a salt of a strong base with a strong mineral acid.

28. The composition of claim 27, wherein the salt is sodium chloride or sodium sulfate.
- 5 29. The composition of claim 27 or 28, comprising 0.1-3 wt% of said salt.
30. The composition of claim 27 or 28, comprising 0.5-2 wt% of said salt.
31. The composition of claim 27 or 28, comprising about 1 wt% of said salt.
- 10 32. The composition of any preceding claim, which is a polishing dip and further comprises an acid and a thiourea.
33. The composition of any of claims 1-31, which is a cream or paste polish
- 15 further comprising a solid polishing medium.
34. The composition of claim 33, wherein the polishing medium is precipitated chalk, infusorial earth, silica or  $\gamma$ -alumina.
- 20 35. Use of the composition of any of claims 1-34 for the treatment of a silver-copper alloy, a silver-copper-germanium alloy, copper, brass or nickel.

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# INTERNATIONAL SEARCH REPORT

Inter nal Application No  
PCT/GB2005/050043

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 C23F11/16 C11D3/00 C11D3/34 C11D11/00 C09G1/02

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 C23C C11D C23F C09G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, COMPENDEX

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X, L	WO 2004/087996 A (MIDDLESEX SILVER CO. LIMITED; JOHNS, PETER, GAMMON; HARRISON, CLARE, E) 14 October 2004 (2004-10-14)  page 12, line 1 - page 25, line 5; claims; examples 8-10	1-7, 11, 20-23, 26-28, 40-43
P,X, L	WO 2004/106567 A (MIDDLESEX SILVER CO. LIMITED; JOHNS, PETER, GAMMON) 9 December 2004 (2004-12-09) page 12, line 30 - page 18, line 2; claims 12-19	1, 42, 43
X	EP 0 492 487 A (DODUCO GMBH + CO DR. EUGEN DUERRWAECHTER) 1 July 1992 (1992-07-01) column 3, line 18 - column 5, line 40; claims; examples  ----- -/-	1-33, 42, 43, 45-47

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

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- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
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X	GB 1 217 414 A (J. GODDARD & SONS LIMITED) 31 December 1970 (1970-12-31) page 1, line 85 - page 2, line 49; claims; example 1 -----	1-33,39, 43
X	US 3 248 235 A (PRYOR DONALD M ET AL) 26 April 1966 (1966-04-26) column 3, line 26 - line 33; claims; examples -----	1-44

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Information on patent family members

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